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Monticello Nuclear Generating Plant
2807 W County Road 75
Monticello, MN 55362

October 3, 2011

L-MT-11-062

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

Monticello Nuclear Generating Plant
Docket 50-263
Renewed Facility Operating License No. DPR-22

Request for Enforcement Discretion to Allow for Performance of EDG Load Reject Testing In accordance With a Revised Surveillance Test Methodology

On September 29, 2011, at 1700 hours CDT, the Northern States Power Company – Minnesota (NSPM) determined that the surveillance test procedure used to demonstrate compliance with Technical Specification (TS) surveillance requirement (SR) 3.8.1.7 involving load reject testing of the Emergency Diesel Generators (EDGs) with the single largest post-accident load did not fully satisfy the TS surveillance requirement. This condition resulted in both EDGs being declared inoperable in accordance with Specification 3.8.1, "AC Sources – Operating," Condition E at 1700 hours CDT on September 29, 2011. On September 29, 2011, at 1900 hours CDT, Condition F, the shutdown portion of the actions was entered.

NSPM believes there is less risk to the public health and safety by allowing continued plant operation than by forcing an unnecessary plant challenge associated with a shutdown to comply with the Required Actions of Specification 3.8.1. Consequently, at approximately 2220 hours CDT, on September 29, 2011, a teleconference was initiated between U.S. Nuclear Regulatory Commission (NRC) Region III, NRC headquarters staff, and NSPM personnel, to discuss the situation. NSPM presented arguments for why enforcement discretion should be authorized to allow a temporary, one-time, extension of the Completion Time of Specification 3.8.1, Condition E, from 2 hours to 5 days (i.e., effective until October 4, 2011, at 1700 hours CDT). Enforcement discretion was requested to provide sufficient time to develop and perform a new surveillance test procedure and perform a test fully meeting SR 3.8.1.7 requirements.

NSPM requested a "regular" notice of enforcement discretion (NOED) be authorized. At 2358 hours CDT on September 29, 2011, Mr. Steven West verbally approved the request for enforcement discretion, effective immediately.

On October 2, 2011, the 12 EDG was tested in accordance with the new surveillance test procedure, discussed herein, and determined to fully meet SR 3.8.1.7. The 12 EDG was declared OPERABLE at 2101 hours CDT and the enforcement discretion period exited.

NSPM is providing this follow-up written request for enforcement discretion within the 2 working day period of the verbal authorization, as required by the NRC NOED guidance. Enclosure 1 to this letter provides the information discussed during the teleconference and provides the additional information requested during the call.

During the September 29, 2011, teleconference, the Staff determined that a follow-up license amendment was unnecessary.

On October 2, 2011, the MNGP Plant Operations Review Committee (PORC) approved this written request for enforcement discretion. A copy of this request for enforcement discretion is being provided to the designated Minnesota Official.

Summary of Commitments

This letter proposes no new commitments and does not revise any existing commitments.

I declare under penalty of perjury that the foregoing is true and correct.
Executed on October 3, 2011.

Timothy J. O'Connor
Site Vice President, Monticello Nuclear Generating Plant
Northern States Power Company – Minnesota

Enclosure (1)

cc: Administrator, Region III, USNRC
Project Manager, Monticello, USNRC
Resident Inspector, Monticello, USNRC
Minnesota Department of Commerce

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REQUEST FOR ENFORCEMENT DISCRETION TO ALLOW FOR PERFORMANCE OF EDG LOAD REJECT TESTING IN ACCORDANCE WITH A REVISED SURVEILLANCE TEST METHODOLOGY

1.0 DISCUSSION

On September 29, 2011, at 1700 hours CDT, the Northern States Power Company – Minnesota (NSPM) determined that the surveillance test procedure used to demonstrate compliance with Technical Specification (TS) surveillance requirement (SR) 3.8.1.7 involving load reject testing of the Emergency Diesel Generators (EDGs) with the single largest post-accident load did not fully satisfy the TS surveillance requirement. This condition resulted in both EDGs being declared inoperable in accordance with Specification 3.8.1, "AC Sources – Operating," Condition E at 1700 hours CDT on September 29, 2011. On September 29, 2011, at 1900 hours CDT, Condition F was entered (the shutdown portion of the actions) requiring entry into MODE 3 in 12 hours.

NSPM has determined that enforcement discretion is warranted to prevent an unnecessary power reduction (proceeding from power operation to cold shutdown) with the potential for transient events that could occur during the shutdown evolution. Given that the present surveillance testing methodology, while not fully meeting SR 3.8.1.7, has demonstrated satisfactory results at near the required test conditions, maintaining the unit at power while performing a new surveillance procedure to meet SR 3.8.1.7 minimizes the potential safety consequences and operational risks.

At approximately 2220 hours CDT, on September 29, 2011, a teleconference was held between U.S. Nuclear Regulatory Commission (NRC) Region III staff, NRC headquarters staff, and NSPM personnel to discuss the situation. NSPM requested a "regular" notice of enforcement discretion (NOED) to be authorized for the Monticello Nuclear Generating Plant (MNGP) (NOED Item D.11).[1]

Enforcement discretion was requested to authorize extension of the Completion Time of Specification 3.8.1, Condition E from 2 hours to 5 days (NOED Item D.1), on a one-time basis, to provide sufficient time to develop and perform a new surveillance test which fully meets SR 3.8.1.7 requirements. Enforcement discretion for Condition E ends at 1700 hours CDT on October 4, 2011. Upon satisfactory completion of surveillance testing for one EDG, Specification 3.8.1, Condition B for one inoperable EDG remains in effect and will expire after 7 days, on October 6, 2011, at 1700 hours CDT.

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1. NRC Inspection Manual, Part 9900, Technical Guidance, "Operations – Notices of Enforcement Discretion," identifies items required for staff review. These items are designated throughout this submittal to support NRC staff review.

At 2358 hours CDT on September 29, 2011, after consultation with Region III Office staff and NRC Headquarters staff, Mr. Steven West approved NSPM's verbal request for enforcement discretion and that discretion was effective immediately. On September 30, 2011, Condition F was exited, and Condition E re-entered.

On October 2, 2011, the 12 EDG was successfully tested in accordance with the new surveillance test procedure, discussed herein, and determined to fully meet SR 3.8.1.7. The 12 EDG was declared OPERABLE at 2101 hours CDT and the enforcement discretion period exited.

Administrative Requirements and Requests

On October 2, 2011, the MNGP Plant Operations Review Committee (PORC) approved this written request for enforcement discretion. (NOED Item D.10)

NSPM is providing this follow-up written request for enforcement discretion within the 2 working day period required, following a verbal NRC authorization of discretion, as required by the NRC NOED guidance. As indicated during the September 29, 2011 teleconference, the NRC Staff determined that a follow-up license amendment was not necessary. (NOED Item D.12).

NSPM has performed a risk assessment of performing the EDG load rejection testing on-line with the revised testing criteria in accordance with the requirements of Note 1 to SR 3.8.1.7 and determined that the risk was acceptable.

2.0 CIRCUMSTANCES SURROUNDING THE SITUATION
(NOED Item D.2)

SR 3.8.1.7 verifies every 24 months (nominal frequency) that "...each EDG rejects a load greater than or equal to its associated single largest post-accident load, and following load rejection, the frequency is ≤ 67.5 Hz." NSPM currently satisfies SR 3.8.1.7 by performing a load rejection of the largest single post-accident load (Core Spray pump) by tripping the pump motor while loaded onto the associated EDG, with the pump flow rate is set to approximately 3000 gpm. The test deficiency is that the flow rate at which the Core Spray pump motor is tripped (3000 gpm) is not the flow rate expected at runout or near runout conditions, corresponding to the trip of the largest single post-accident load. Consequently, the frequency response of the EDG has not been fully demonstrated in accordance with SR 3.8.1.7.

a. <u>Self Assessment Discovery and Effects</u>

MNGP has been conducting a self assessment in preparation for an upcoming component design basis inspection (CDBI). As part of that effort, an operating experience (OE) review identified a non-cited violation at the FitzPatrick plant

involving EDG load reject testing that appeared potentially applicable to the MNGP and required further investigation. This EDG load reject testing corresponds to SR 3.8.1.7 at Monticello.

On September 27, 2011, a corrective action program (CAP) assignment was initiated regarding the acceptability and basis for the MNGP surveillance test procedure (meeting SR 3.8.1.7) concerning the adequacy of the surveillance test methodology for EDG load reject testing of the single largest post-accident load, and maintaining frequency requirements.

On September 29, 2011, the MNGP determined that the surveillance test procedure performed (and hence surveillance test results) to demonstrate compliance with SR 3.8.1.7, did not fully satisfy TS requirements. This resulted in both EDGs being declared inoperable in accordance with Specification 3.8.1, Condition E at 1700 hours on September 29, 2011. If the increased duration for Condition E was not granted on September 29, 2011, NSPM would continue to shut down the unit in accordance with Specification 3.8.1, Condition F, which was entered at 1900 hours on September 29, 2011. Condition F requires placing the unit in MODE 3 in 12 hours, and MODE 4, within 36 hours.

Increasing the Completion Time from 2 hours to 5 days provides sufficient time to develop and perform a new surveillance test fully meeting SR 3.8.1.7 requirements. This increase in duration is necessary to provide sufficient time for procedure development, briefing and familiarization of operators with the new procedure, and validation of the new surveillance procedure on the plant simulator prior to performance.

b. Surveillance Discussion

This SR is performed every 24 months (nominal frequency) and verifies that each EDG rejects a load greater than or equal to its associated single largest post-accident load, and following the rejection, the frequency is less than or equal to 67.5 hz, demonstrating the capability of the EDG to reject the largest single load while maintaining margin to the overspeed trip. This SR has been previously tested by surveillance test, OSP-ECC-0566, "Low Pressure ECCS Automatic Initiation and Loss of Auxiliary Power Test." Monticello has determined that although the maximum post-LOCA load (Core Spray pump) is rejected, it has been determined that the test load rejection must be higher to bound the post-accident flow scenario. The current surveillance test methodology is set up to satisfy the SR by running the Core Spray pump at 3000 gpm and then trip the pump to show that the respective EDG meets frequency response requirements. Surveillance procedure OSP-ECC-0566 measures the steady-state frequency of the EDG before and after the trip, the peak frequency resulting from the load reject is not measured.

This question on the required post-accident test load was documented in the Corrective Action Program. The response to this question indicates that the Core Spray pump running at 3000 gpm does not correspond to the flow that would be realized during post-accident conditions. The Core Spray pump would operate at higher flow rates (equivalent to 800 brake horse power (bhp)). The surveillance test procedure has the Core Spray pump operating at approximately 700 bhp.

The TS Bases for SR 3.8.1.7 do not provide any further guidance, it merely states that the EDG overspeed trip margin is verified versus the single largest post-accident load (the Core Spray pump), not the operating conditions for the pump for the surveillance.

3.0 CAUSE AND PROPOSED RESOLUTION

Although a formal causal evaluation has not yet been performed, the apparent cause for this noncompliance appears to be an inadequate surveillance test procedure resulting from failure to fully reflect the changes enacted through the implementation of the Improved Standard Technical Specifications (ITS) in 2006. It should be noted that this is a new surveillance requirement for the MNGP that did not exist within the previous MNGP custom TS prior to its introduction with ITS. It appears that this was not correctly translated into an adequate test to meet the surveillance requirement and hence not correctly implemented as part of the ITS implementation process. (NOED Item D.3)

No prior action was identified or taken, as this is an unforeseen, urgent emergent condition, and the duration of the applicable condition in TS Specification 3.8.1, Condition E, is too short to allow for the development and performance of a new surveillance test before the TS shutdown actions are required to be entered. (NOED Item D.2)

As described throughout this request for enforcement discretion, especially the technical analysis (safety basis for the request) section, MNGP has been in contact with various utilities, the EDG vendor, and has examined previous EDG testing to establish that the EDGs can technically fully meet the requirements of SR 3.8.1.7. NSPM is confident that the EDGs can maintain the SR 3.8.1.7 frequency requirement while undergoing a load rejection of the largest single post-accident load (or equivalent). Site resources have been dedicated to developing this new surveillance procedure and to performing the required surveillance testing. Therefore, NSPM is confident this testing can be successfully completed within the enforcement discretion period satisfying SR 3.8.1.7. (NOED Item D.3)

No relevant historical events have been identified for Monticello. (NOED Item D.2)

4.0 PLANT STATUS AND JUSTIFICATION FOR DURATION OF THE NONCOMPLIANCE

a. Condition and Operational Status of the Plant (NOED Item D.6)

The unit is in Mode 1. The equipment listed below, other than the EDGs, are under TS Action statements.

- Control Rod Drive 38-39 Control rod fully inserted and disarmed as required by Required Action 3.1.3.C.
- Alternate Shutdown System (ASDS) (Remote shutdown Panel) Reactor Flood Level Instrumentation Optical isolator between ASDS and control room panels out of calibration but the vessel level indicator in the Control Room is operating properly.

No safety-related equipment is out-of-service that would challenge the EDGs or electrical busses.

b. Status and Potential Challenges to Off-site and On-site Power Sources (NOED Item D.7)

There are no challenges to off-site power. Xcel Energy has been contacted to restrict transmission operations that could potentially impact the MNGP. The plant subyard is in its normal alignment and access controlled by the site. No severe weather conditions are currently predicted in the Monticello area during the period of enforcement discretion.

c. Review of Planned Work Activities for Impacts

The MNGP Production Planning Department has developed a detailed schedule outlining the activities and the sequencing necessary to restore the EDGs to OPERABLE status by performance of revised surveillance procedures to meet SR 3.8.1.7.

The "Monticello EDG Load Shed Test Initial Schedule Overview," dated September 30, 2011, is provided as the last page to this enclosure.

Based on this schedule, and the activities being performed in accordance with the schedule, NSPM is confident that one EDG can be restored to OPERABLE status within the 5 day enforcement discretion period, and that the second EDG can be restored to OPERABLE status within the originally entered 7 day Completion Time of Specification 3.8.1, Condition B.

d. Justification for Duration of the Noncompliance (NOED Item D.5)

NSPM requested an extension of the Specification 3.8.1 Condition E Completion Time (which expired on September 29, 2011) by 5 days to allow sufficient time to restore one EDG to OPERABLE status. Additional time is required to develop a new surveillance test procedure for performing an EDG load rejection with an EDG loaded to the grid simulating the load associated with the single largest post-accident load, (a Core Spray Pump at post-accident conditions). This new test will be performed in lieu of the previous surveillance test procedure which involved the load reject of a Core Spray pump.

Also, as this will be a new surveillance test procedure, and therefore has never been performed, this procedure application constitutes an Infrequent Test or Evolution (IPTE), requiring additional Operations staff preparation and briefing prior to use. Additionally, as an IPTE, it is prudent to perform the EDG load rejection surveillance test with the new test procedure on the Plant Simulator prior to first use. This will prepare the Operations Shift performing the evolution with the expected plant response and determine if there are any flaws in the surveillance test procedure prior to its use in the plant. NSPM is installing instrumentation to capture the frequency information resulting from the new load reject surveillance test.

In accordance with the current schedule, NSPM estimates that several days will be required to develop the procedure, perform validation, perform an IPTE briefing, and run the new surveillance test on the simulator prior to performing the surveillance test in the plant.

As discussed in Section 6, under the Risk Assessment, there is no net increase in risk associated with operating the plant for an additional 5 days in this condition.

5.0 PERTINENT EMERGENCY DIESEL GENERATOR LICENSING BACKGROUND

Updated Safety Analysis Report (USAR) Section 8.4.1.4, "Inspection and Testing," states:

The preoperational testing program included tests to verify that EDG unit performance, upon loss of the largest single load during emergency operation, will not adversely affect either of the EDGs. The Diesel Generator manufacturer has advised that, based on experience with this model, tripping of the largest load on each diesel, an additional 800 HP Core Spray pump, would result in a maximum rise in voltage to about 113% of nominal and a rise in speed to about 102% of nominal. Recovery time is about 1.4 seconds for voltage and 3 seconds

> for speed. These tests involved loading the diesels as outlined in Table 8.4-2 and tripping off the loaded Core Spray pump and measuring the voltage and frequency disturbances as well as the recovery time.

USAR Table 8.4-2 states: The designation of the Core Spray pump as the largest single load on the EDGs was based on the load ratings as shown in USAR Table 8.4-2, "Standby Emergency Diesel Generator System Emergency Loads (Per EDG-Set)".

The TS Bases to SR 3.8.1.7 state:

> Each EDG is provided with an engine overspeed trip to prevent damage to the engine. Recovery from the transient caused by the loss of a large load could cause diesel engine overspeed, which, if excessive, might result in a trip of the engine. This Surveillance demonstrates the EDG load response characteristics and capability to reject the largest single load while maintaining a specified margin to the overspeed trip. The largest single load for each EDG is a Core Spray pump (800 hp). This Surveillance may be accomplished by either: a. Tripping the EDG output breaker with the EDG carrying greater than or equal to its associated single largest post-accident load while paralleled to offsite power, or while solely supplying the bus; or b. Tripping its associated single largest post-accident load with the EDG solely supplying the bus.
>
> Consistent with Regulatory Guide 1.9 (Ref. 3), the load rejection test is acceptable if the diesel speed does not exceed the normal (synchronous) speed plus 75% of the difference between nominal speed and the overspeed trip setpoint, or 115% of nominal speed, whichever is lower. For EDGs 11 and 12, this represents 67.5 Hz, equivalent to 75% of the difference between nominal speed and the overspeed trip setpoint.

6.0 TECHNICAL ANALYSIS (SAFETY BASIS FOR THE REQUEST)

A review of the engine testing history, preoperational testing, and industry operating experience indicates that the EDGs will pass SR 3.8.1.7 at the revised post-accident load conditions. Also, a review of the governor maintenance history, modifications and operating experience with respect to governor performance, also does not indicate any items that would hinder proper performance.

ENGINE / GOVERNOR PERFORMANCE

The EDGs are designed to provide an alternate, onsite source of reliable 4160 VAC power for safe shutdown equipment required to mitigate the consequences of a design basis accident in the event of a total loss of the normal and offsite power sources. Each generator is rated to supply 2500 kW (3125 KVA at 0.8 power factor (PF)), 4160 Vac, three phase, 60 Hz.

A letter from the vendor, the Electro-Motive Division (EMD), dated May 8, 1968, provides confidence in engine / governor performance. It states that a response rate to transient loads of Woodward UG-8 governors used on the EMD engines is extremely fast. Engine speed increases from a full load to a no load transient would result in a 7% increase. This correlates to a frequency increase from 60 Hz to 64.2 Hz or 61.2 Hz to 65.5 Hz. Therefore, it is reasonable to conclude that a load (703 kW) which is significantly less than the EDG full load (2500 kW) will not exceed or challenge the 67.5 Hz limit specified in TS SR 3.8.1.7.

a. Engine Testing History

During pre-operational testing at MNGP a load of 1000 kW was rejected at a near unity power factor, 1000 kW at a 0.8 power factor, and 2000 kW at a 0.8 power factor on both EDGs. Results indicated that a load rejection from 60 Hz for the 1000 kW case at a near unity power factor and the 1000 kW case at a 0.8 power factor did not increase the frequency to greater than 63 Hz. The load rejection from 60 Hz for the 2000 kW case at a 0.8 power factor did not increase the frequency to greater than 64 Hz.

Although it is understood that the relationship between the resulting output frequency and the load reject may not be linear over the entire range of load, for small relative changes in load reject, stating a directly proportional resulting frequency is reasonable given the performance of the speed governor used on the EDGs.

Past TS surveillance testing rejects the Core Spray pump while operating at approximately 3000 gpm. The respective Core Spray load at 3000 gpm is 586 kW. This was based on a 0.90 efficiency rating of the motor, 0.746 conversion factor to kW, extrapolated 700 HP rating of the Core Spray pump horsepower at 3000 gpm and a minimum frequency of 60.3 Hz during previous testing.

The post-reject frequency data is manually recorded following the trip of the Core Spray pump and does not necessarily reflect the largest frequency achieved by the generator. Surveillance performance test results indicates that there is a consistently stable governor response for the tests but does not reflect actual maximum frequency of a 586 kW load reject.

Industry Operating Experience (OE) with the same governor and engine has shown that governor response from a full load transient of 2750 kW would result in an increase in frequency from 60 Hz to 63.6 Hz. Industry OE with the same governor and engine has shown that governor response with the largest load transient of 711 kW would result in a frequency increase from 60.2 Hz to 61.6 Hz. Data further supporting this conclusion includes the large margin observed while

rejecting a 1000 kW load and a 2000 kW load during MNGP preoperational testing.

The industry OE and pre-operational testing are within the design frequency band that the manufacturer stated. MNGP surveillance test results indicate consistent governor operation. There is no indication of governor or supporting equipment degradation that would cause the frequency to be outside the TS required limit. Based on the above discussion, there is reasonable assurance that the EDGs are fully capable of performing the required safety functions.

b. Governor Preventative Maintenance History

MNGP performs governor maintenance as described by ESI-EMD Owner's Group (OG) recommendations. The 11 and 12 EDG governor's are Woodward Hydro-mechanical UG-8 models. The owners group recommends that the governors be replaced every 30 years. The oldest governor unit installed is on the 11 EDG and is approximately 24 years old. The 12 EDG governor is approximately 9 years old. The preventative maintenance (PM) strategy is based on an ESI-EMD OG recommendation for maintenance of the EDG hydraulic governors and actuators entitled, "Interval for Governor / Actuator Replacement, ESI-EMD OG Electrical Subcommittee Program Document," dated July 12, 2011, with a recommended replacement frequency of 30 years. The basis of this document is a review of Electric Power Research Institute (EPRI) NMAC document 1015157, ESI-EMD OG survey responses, presentations of governor issues at EDG OG meetings, and taking into consideration plant life extensions.

The governor is maintained in accordance with the guidelines of ESI-EMD OG, "Recommended Electrical Maintenance Program" document. The document provides guidance on various items, such as frequency of governor oil change out, governor booster motors, etc. The MNGP PMs are based on this document as well.

The Woodward Hydro-mechanical UG-8 models are in service at 13 member plants. Some plants have operated with UG-8 actuators for over 40 years, with satisfactory operation. Based on the satisfactory operation of the MNGP EDGs and surveillance performance, the UG-8 governors installed are considered very reliable and in satisfactory condition.

c. Governor Modifications

A 2000 EDG design modification, "Emergency Diesel Droop Improvements," modified the control circuits of both EDGs. The change was to have the engine operate at rated speed (900-915 RPM) upon startup and operate at the same speed regardless of engine load. This was a change made from the previous design of having a 5% droop for operation at 63 Hz unloaded and 60 Hz under

full load conditions. This modification revised the governor settings to eliminate droop in emergency mode which provided a smaller variance in frequency.

d. Industry Operating Experience

Members of the ESI-EMD OG with similar EMD engines and Woodward UG-8 model governors were polled for load reject testing methods. Responses were received from the Surry, ANO, River Bend, Dresden, Quad Cities, Beaver Valley and Perry plants. It was determined that it was not uncommon to perform the load reject with the largest single post-accident load surveillance test while paralleled to the grid. There were no failures reported due to equipment failures or degradation; the only failure was due to improper governor adjustment after maintenance. Governor response data was provided and the responses were favorable. For example, ANO performs a full load reject while paralleled to the grid, and their maximum frequency was 63.6 Hz.

Based on the design of the EMD diesel engines load capacity and ability to support full load rejects, internal OE, and external OE, there is reasonable assurance that the 11 and 12 EDGs are fully capable of performing the single largest post-accident load rejection surveillance test (SR 3.8.1.7) satisfactorily. Maintenance performed on the governors reflects industry guidance, and the reliability of these governors has been proven through monthly surveillance test performance and results of past load rejection tests performed every 24 months.

RISK ASSESSMENT

The following discussion assesses the risk associated with operating the plant without performance of a fully adequate surveillance, i.e., a load reject, corresponding to the single largest post-accident load (a Core Spray pump). Currently, in accordance with SR 3.8.1.7, the single largest post-accident load is tripped from the EDG associated with that division to test the ability of the EDG to respond to a load shed. The size of the load tripped is approximately 12.5% lower than that required to properly demonstrate EDG response. Examination of data from past surveillance testing as well as industry data for similar tests on similar diesel generators, provides strong evidence that performance of a surveillance test in a accordance with SR 3.8.1.7, would not result in an overspeed trip of a EDG. From this evidence, summarized in the engineering evaluation discussed previously, it is reasonable to conclude that the risk associated with plant operation for the five day enforcement discretion period, without benefit of performance of a fully adequate EDG surveillance, does not lead to a significant increase in risk.

e. Risk Analysis (NOED Item D.4.a)

To validate this conclusion, a bounding risk analysis was performed, using highly exaggerated failure probabilities for the EDG "failure to run" basic events in the Monticello PRA model. Although the EDG run failure rates are virtually unaffected due to the less than adequate test procedure, both EDG failure to run events, as well as a third common cause event representing both EDG's failing to run, were set to a value of ten times their nominal probabilities. Using the available Monticello work planning schedules, all pertinent upcoming plant configurations were quantified for Core Damage Frequency (CDF) risk under both nominal EDG failure conditions and exaggerated failure to run conditions. The largest risk delta Core Damage Frequency (ΔCDF) from all of these plant configurations was then used to calculate a bounding value for accumulated risk for the upcoming 5 day period. For this limiting plant configuration, with a nominal CDF of 7.49E-06/yr and a CDF of 1.01E-05/yr associated with elevated EDG failure rates, the Incremental Conditional Core Damage Probability (ICCDP) for the 5 day period is 3.58E-08.

The same limiting plant configuration was analyzed to determine the Incremental Conditional Large Early Release Probability (ICLERP). With a nominal Large Early Release Frequency (LERF) of 2.96E-07/yr and a LERF of 3.55E-07/yr associated with elevated EDG failure rates, the ICLERP for the 5 day period is 8.08E-10. These conservative values of ICCDP and ICLERP are well below NRC guidance thresholds of 5.0 E-07 and 5.0 E-08 respectively, which are considered to be consistent with very low risk.

Risk associated with the proposed course of action has also been evaluated. The proposed course of action involves load rejection testing of the EDGs with the plant on-line. This test will introduce an electrical transient on the safety-related 4.16 KV buses when the EDG output breaker is tripped open under load. This transient will be of lesser magnitude than the transient associated with the inrush current upon starting a Core Spray pump. The transient effects are within the normal design parameters of the system and do not introduce any material risk.

In conclusion, the risk associated with inadequate test processes for the EDG load reject response for the 5 day duration is negligible.

f.. Dominant Risk Contributors (NOED Item D.4.b)

As is the case with the baseline PRA model for Monticello, the dominant cutsets from the above conservative sensitivity analysis are initiated by internal flooding events. The sensitivity shows, as expected, that damage/release sequences associated with EDG failure are elevated by a factor of 10, or a factor of 100 in rare cutsets where both EDG's are involved. The majority of sequences remain unchanged.

g. Compensatory Measures (NOED Item D.4.c)

Risk mitigation measures will be taken to protect the availability of equipment related to AC electrical power supply systems which support both essential and non-essential electrical loads. Protected System status provides measures and controls access to reduce probability of inadvertent challenges to protected components.

Protected Systems:

- Monticello Site Substation 345/115KV – 345 KV Substation connects to NSP 345 / 115 kV / Great River Energy 230 KV Systems (2R Transformer supply). 115 KV Substation supplies 1R Reserve Station Auxiliary Transformer and connects Monticello 345 KV to Xcel 115 KV System.
- 2R Transformer – Normal full station power source.
- 1R transformer – Backup source if automatic or manual transfer from 2R Transformer necessary.
- 1AR Transformer – Backup off-site power to 4.16 KV Essential Buses 15 and 16 in event of loss or degraded voltage from 2R or 1R Transformers. Only safeguard buses are transferred to this transformer.
- 11 and 12 EDGs – Designed to power safe shutdown loads under a LOOP coincident with DBA LOCA.
- 13 Non-Essential Diesel Generator – Supplies non-essential load centers, plant computers and other auxiliaries on loss of normal AC power. Can back-feed essential load centers and battery chargers.
- Security Diesel Generator – Can supply power to the safety related battery chargers.
- Upper / Lower 4kV Switchgear – Each have two non-essential 4.16 KV buses and one essential safeguards bus, either Bus 15 or 16, located on 911 or 931 elevations in Turbine Building.
- Y-70 & Y-80 Uninterruptible AC Systems – Instrument AC and 120 V single phase power power supply to process / area radiation monitors, recorders, neutron monitoring, control panels, PA System, control rod position indication, High Pressure Coolant Injection and Reactor Core Isolation Cooling Systems.

- 24 volt DC Batteries – Source of power to Nuclear Instrumentation.
- 125 volt DC Batteries – Source of control power to panels, switchgear and emergency lights. Sized for 4-hour Station Blackout scenario.
- 250 volt DC Batteries – Source of power to large loads (e.g., pumps, valves, and uninterruptible power supplies). With a loss of AC to battery chargers, batteries supply emergency loads for designed duration.
- High Pressure Coolant Injection System (HPCI) – Supplies RPV under small break LOCA, loss of normal feed, or Station Blackout (SBO).
- Reactor Core Isolation Cooling System (RCIC) – Supplies RPV under loss-of-feedwater or loss of AC power. Can be used without power.

Additional Risk Mitigation Measures:

An on-going, in-depth review of planned work activities is occurring during the period of enforcement discretion. Activities in areas with protected equipment, including those to restore the EDGs to OPERABLE status, must be authorized by Operations Management. Additionally, only essential activities are being allowed to commence in the plant during the enforcement discretion period.

The Operations staff will refresh their knowledge related to resetting an overspeed trip of a EDG.

In the new EDG load rejection surveillance test procedure, selected non-safety related loads will be transferred to the non-affected bus during the period of the surveillance test, at the discretion of the Operations Shift Manager, to mitigate further risk to loads needed for full power operation.

These measures will tend to reduce the frequency of loss-of-offsite power initiators, protect the AC power supplies that supplement the EDG capabilities, as well as enhance the reliability of recovery actions related to EDG trips.

SBO Strategy and Contingencies:

The SBO analysis credits automatic initiation and subsequent HPCI cycling and tripping on high water level to maintain RPV level. RCIC is preferentially used, if available. Also, the following contingencies are proceduralized:

- Power 250 VDC battery chargers from 13 Diesel, Security Diesel, or portable diesel.
- RCIC operation with no AC or DC power.
- Inject into vessel with Diesel Fire Pump.

h. Effect of Compensatory Measures on the PRA (NOED Item D.4.d)

As the conclusion of the risk assessment states, there is negligible impact on risk of core damage and subsequent release. It follows that these measures can only counter the negative impact from improper performance of the EDG surveillance commensurate with the risk imparted by the surveillance deficiency.

i. Extent of Condition (NOED Item D.4.e)

The surveillance deficiency is limited to the two EDGs as they are the only diesel generators that require demonstration of adequate response to a shed load in accordance with the TSs.

j. External Events Risk (NOED Item D.4.f)

External events such as seismic, high wind and tornado events that increase the threat of a loss-of-offsite power, will rely on the EDG's as an alternate AC power source should offsite power be lost. Change in external event risk is limited, as the EDG reliability is not significantly impacted by the surveillance deficiency being addressed.

k. Impacts from Forecasted Weather Conditions (NOED Item D.4.g)

No severe weather conditions are currently predicted in the Monticello area for the foreseeable future. As severe weather can impact the reliability of offsite power supply, a reduction in EDG reliability would be of concern. However, since the reliability of the EDG's is virtually unchanged by this surveillance deficiency, the level of threat to the site from severe weather conditions remains unchanged.

7.0 BASIS FOR CONCLUSION THAT THE NONCOMPLIANCE WILL NOT BE DETRIMENTAL TO PUBLIC HEALTH AND SAFETY

(NOED Item D.8)

NSPM applied the standards of the No Significant Hazards Determination process to evaluate this request for enforcement discretion. NSPM determined that authorizing enforcement discretion for the prescribed discretionary period presents no significant hazards and hence will not be detrimental to the public health and safety.

a) Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

No. The safety function of the EDGs is to provide AC power to required safety systems during a Loss of Offsite Power (LOOP). The limiting design basis accident is the Loss of Coolant Accident (LOCA), with concurrent LOOP (LOOP-LOCA). This modification of the surveillance test methodology to test the EDGs on-line does not impact the off-site AC distribution system, and hence the probability of a LOOP event, including LOOP-LOCA is not significantly increased.

There is no effect on the probability of any event initiators. There will be no degradation in the performance of, or an increase in the number of challenges imposed on, safety related equipment assumed to function during an accident situation. There is no change to normal plant operating parameters or accident mitigation performance. Therefore, there is not a significant increase in the probability or consequences of an accident previously evaluated.

b) Does the proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?

No. There are no hardware changes nor are there any changes in the method by which any plant systems perform a safety function. This request does not affect the normal method of plant operation.

No new equipment is introduced which could create a new or different kind of accident. A risk analysis of performing this testing on-line provided acceptable results. No new external threats, release pathways, or equipment failure modes are created. No new accident scenarios, transient precursors, failure mechanisms, or limiting single failures are introduced. Therefore, this proposed change does not create the possibility of a new or different kind of accident from any previously evaluated.

c) Does the proposed change involve a significant reduction in a margin of safety?

No. There is no change to the manner in which the safety limits or limiting safety system settings are determined nor are there any changes to those plant systems necessary to assure the accomplishment of protection functions. For these reasons, the proposed amendment does not involve a significant reduction in a margin of safety.

Based on this evaluation, NSPM has determined that the condition does not involve a significant hazards consideration and hence will not be detrimental to the public health and safety.

8.0 BASIS FOR CONCLUSION THAT THE NONCOMPLIANCE WILL NOT INVOLVE ADVERSE CONSEQUENCES TO THE ENVIRONMENT

(NOED Item D.9)

NSPM has determined that this condition will not result in violation of a requirement with respect to installation or use of a facility or component located within the restricted area, as defined in 10 CFR 20, nor would it change an inspection or surveillance requirement. It does not involve (i) a significant hazards consideration, or (ii) authorize a significant change in the types or a significant increase in the amounts of any effluent that may be released offsite, or (iii) result in a significant increase in individual or cumulative occupational radiation exposure, meeting the criteria for a categorical exclusion in 10 CFR 51.22(c)(9) from requiring an environmental impact statement or environmental assessment pursuant to 10 CFR 51.22(b). Hence there will be no adverse consequences to the environment.

NSPM applied the standards for an Environmental Evaluation and concluded that authorizing enforcement discretion will not be detrimental to public health and safety.

9.0 CONCLUSION

Based upon the engine and governor test history, MNGP pre-operational testing results, industry performance with similar diesel generators and governors, in addition to information from other utilities that perform this surveillance test online, there is a reasonable expectation that the EDGs can pass SR 3.8.1.7 (when performed in accordance with the new surveillance test procedure) and be restored to OPERABLE status within the duration of the requested enforcement discretion.

Day 1
(Start 1700 hours 9/29/11)

Day 2

Day 3/4

Day 4/5

Day 5

Day 6

Gather Info/Industry Info

Validation w/crew Walk-down & Simulator

Review & Approve Procedure (PORC & Document 50.59 Review)

Ready Ready Challenge Board

Remove Test Equipment

Complete ITOE Breif

Draft Procedure

Validation with Craft

JITT on Simulator (Multiple Crews)

Complete ITOE Breif

Evaluate Results

Run 2nd EDG Surveillance

50.59 Draft

Revise Procedure & 50.59 with Review Inputs

Run Surveillance

Exit LCO Action

Evaluate Results

Documented Risk Review Evaluation per tech spec SR 3.8.1.7 Note 1

Exit NOED

Remove Test Equipment

Calibrate Test Equipment

Install Test Equipment

Exit LCO Action

Monticello EDG Load Shed Test
Initial Schedule Overview
9/30/11